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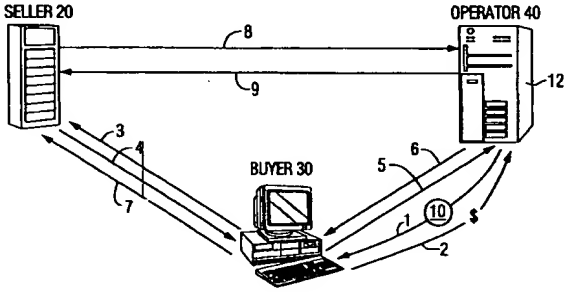
(54) Title: DIGITAL CASH AND METHOD OF COMMERCE



1. THE USER HAS VISITED A VENDORS WEB SITE AND DECIDES TO MAKE A PURCHASE.
2. THE VENDOR SENDS THE END USER AN ON-SCREEN ORDER FORM WHICH INCLUDES A CD-CASH SOFTWARE COMPONENT FROM THE OPERATOR. THIS COMPONENT IS USED TO INITIATE THE VERIFICATION PROCESS.
3. THE END USER IS PROMPTED TO INSERT A CD-CASH CD INTO THEIR CD DRIVE AND ENTER THE PASSWORD FROM THE CD PACKAGING.
   THE SOFTWARE COMPONENT ON THE END-USER MACHINE DOES A PRELIMINARY CHECK TO ENSURE THE CD IS AT LEAST A CD SUPPLIED BY THE OPERATOR AND THAT THE PASSWORD ENTERED BY THE USER (OBTAINED FROM THE PACKAGING OF THE CD) IS IN THE CORRECT FORMAT.
   IT THEN SENDS THE UNIQUE ENCRYPTED IDENTIFIER FROM THE CD, TOGETHER WITH THE PASSWORD AND ALSO THE VENDORS CODE/ID, TO THE OPERATOR FOR VERIFICATION. (NOTE THAT THE VENDORS CODE IS ACQUIRED BY THE USER WHEN THE VENDOR SENDS THE ORDER FORM.)
4. THE OPERATOR VERIFIES THAT THE CD HAS SUFFICIENT VALUE AND RETURNS AN AUTHORIZATION CODE TO THE SOFTWARE COMPONENT ON THE END USERS COMPUTER.
5. THE SOFTWARE COMPONENT ON THE END USERS COMPUTER THEN NOTIFIES THE VENDOR THAT APPROVAL HAS BEEN RECEIVED AND SENDS THE VENDOR THE AUTHORIZATION CODE.
6. THE VENDOR'S COMPUTER SENDS THE AUTHORIZATION CODE AND ADDITIONAL ENCRYPTED INFORMATION UNIQUE TO THE CD TO THE OPERATOR FOR FINAL CONFIRMATION. THE VALUE OF THE CD IS NOW DEBITED AND THE VENDOR ACCOUNT CREDITED.
7. A CONFIRMATION IS SENT BACK TO THE VENDOR THAT PAYMENT HAS BEEN MADE. THE VENDOR NOW KNOWS THAT IT IS OK TO GIVE THE SERVICE OR GOODS TO THE END USER. THE VENDOR'S ACCOUNT WITH THE OPERATOR HAS NOW BEEN CREDITED WITH THE AMOUNT RELEVANT TO THE TRANSACTION.

(57) Abstract: A method of electronic commerce using an optical disc (10) as a medium of exchange. The optical disc (10) is encoded with data representing a monetary value. The monetary value is reduced by an operator involved in an electronic exchange between a buyer (30) and a seller (20). The optical disc (10) may further be encoded with data representing a second monetary value representing a discount or incentive. The optical disc (10) may further include data representing a consumer product such as music or software.

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DIGITAL CASH AND METHOD OF COMMERCE

FIELD OF THE INVENTION

This invention relates generally to the field of electronic commerce, and more particularly to the field of media of exchange for use in electronic commerce, and specifically to a method and media of exchange for use in conducting commercial transactions via the Internet.

BACKGROUND OF THE INVENTION

Commerce was originally conducted under the barter system, wherein objects of similar value were exchanged directly. The barter system has obvious limitations, and various media of exchange were developed long ago to simplify the commercial transaction process. One of the first medium of exchange to be used was the token. The earliest tokens were objects having intrinsic value, for example precious stones or shells. Later, coins were minted from a precious metal such as gold or silver. Eventually tokens came to represent economic value rather than actually having intrinsic value. For example, United States coins are tokens representing a value greater than the value of the metal of the coin itself. Tokens are available in a limited number of denominations and they are cumbersome when utilized in large numbers, therefore notational money was developed. Notational money such as modern paper money or a bank check may assume any monetary value without a change in its physical

geometry. Notational money was originally linked directly to an intrinsic value located elsewhere, such as the gold in Fort Knox that backed the United States dollar for many years. With the demise of the gold standard, our modern notational money is now backed by the faith and credit given by the user of the money to the issuer of the money.

A large portion of the value in today's economy is in the form of electronic balances maintained in the records of issuing authorities and representing the value of accounts established in the name of users. Transfers of such economic value are routinely accomplished by electronic means. Electronic accounts include both debit and credit accounts. Physical implements such as bank checks, debit cards and credit cards sometimes represent these electronic balances. Credit and debit accounts have functioned well for decades, however, they have certain shortcomings that are becoming increasingly detrimental to the full development of the economic potential of the digital economy.

A small but rapidly growing portion of the world's commerce is being conducted over the Internet. Currency and coinage are impracticable as a medium of exchange for this portion of the economy. Credit and debit accounts have been utilized for Internet commerce, however, the cost of establishing, using and maintaining such accounts has restricted their usefulness for digital commerce, particularly for small value transactions. Furthermore, in order to use a credit or debit account the identity of the user must be confidently established in order to avoid fraudulent transactions. Therefore there is a low level of consumer privacy in such transactions. Also, there is a general reluctance in the marketplace to providing credit and debit account information on-line due to the inherent insecurity

of an Internet communication. These limitations have stimulated inventors to develop alternative methods and media of exchange for on-line transactions.

United States patents 5,590,197 issued on December 31, 1996, to Chen, et al., 5,753,899 issued on May 19, 1998, to Gomm, et al. and 5,857,079 issued on January 5, 1999, disclose cash alternative transaction systems which are directed to supporting commerce in the digital age. These systems are based on the use of smart cards, i.e. a debit or credit card encasing a small microprocessor and having a memory capacity. While these systems improve upon the standard debit/credit card system by providing improved flexibility and security, they retain the disadvantages of high cost and low consumer privacy and are less than optimal for Internet commerce.

Similarly United States patents 5,748,737 issued on May 5, 1998, to Daggar and 5,815,657 issued on September 29, 1998, to Williams, et al. disclose systems that function as an electronic wallet. An electronic wallet is a portable device having multiple digital data interfaces for organizing account information and conducting transactions electronically. However, these systems are also less than optimal for a transaction conducted via the Internet due to their cost and privacy limitations.

United States patent 5,816,917 issued to Kelmer on October 6, 1998, discloses a gambling device which utilizes a floppy disc or smart card that is purchased from a vendor and which has been assigned a predetermined credit balance for use in a gambling game device. This device is limited to the use predetermined by the vendor. Furthermore, there is a high risk of fraud with such a device because the economic value associated

with the device is encoded onto the device itself which is in the possession of the user.

United States patent 5,710,886 issued on January 20, 1998, to Christensen, et al. discloses a system for distributing coupons by using diskette or CD-ROM software. This system requires the user to utilize a telephone to contact a telemarketing representative in order to enable the software to print a coupon having a commercial value. Such systems have limited application in an all-digital digital environment.

United States patent 5,802,497 issued on September 1, 1998, to Manasse describes a method of conducting commerce over a computer network wherein a broker and/or a vendor issues electronic script. The script is utilized in a network exchange for the purpose of supplying a consumer with a product or service. While this method is designed for an all-digital environment, it relies on the use of electronic script as the media of exchange. The electronic script must be stored on the consumer's computer and transmitted over the network, thereby creating risk that the script will be erased or misread.

The above-cited patents are incorporated by reference herein. In light of the requirements of the developing Internet economy and the limitations of the prior art, it is an object of this invention to provide a medium of exchange that can be utilized for commerce on the Internet. It is a further object of this invention to provide a method of conducting a commercial transaction via the Internet. It is a further object of this invention to provide a medium of exchange and a method of conducting a transaction over the Internet that provides security and anonymity for the user and that is economical to use for very small value transactions.

SUMMARY OF THE INVENTION

These and other objects of the invention are accomplished in a medium of exchange comprising an optical disc and data encoded on the optical disc representing a monetary value. The objects of the invention are further accomplished by a method of conducting a transaction via the Internet, the method having the steps of: an operator associating a first monetary value with an optical disc; a buyer obtaining the optical disc; the buyer obtaining information regarding an item from a seller via the Internet; the buyer communicating data representing a price and the optical disc to the operator via the Internet; the operator providing a confirmation to the buyer via the Internet; the buyer transmitting the confirmation to the seller via the Internet; the seller confirming the authenticity of the confirmation with the operator via the Internet; the seller providing the item to the buyer.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 illustrates a compact disc used as a medium of exchange in accordance with this invention.

Figure 2 illustrates the steps of a method of electronic commerce in accordance with this invention.

Figures 3-9 illustrate the computer screen of a buyer as it would appear during an electronic transaction in accordance with this invention.

Figures 10-12 illustrate the computer screen of a buyer as it would appear as the buyer checks the value of the compact disc of Figure 1.

Figure 13 illustrates the computer screen of a buyer as it would appear as the buyer displays the historical value of the compact disc of Figure 1.

DETAILED DESCRIPTION OF THE INVENTION

The inventors have developed a novel method of conducting a commercial transaction via the Internet by utilizing a medium of exchange that is unique and yet familiar to the digital environment. The medium of exchange of this invention is illustrated in FIG 1 as an optical data storage medium such as compact disc 10 encoded with data representing a monetary value. The method of recording data on the optical disc 10 and the method of retrieving data from the optical disc 10 are known in the art of optical data storage media. Optical disc 10 is illustrated in Figure 1 as bearing the name CD CASH, an unregistered mark used by the assignee of this invention to identify certain aspects of this invention.

A method of using the optical disc 10 of FIG 1 to conduct a commercial transaction on a network is illustrated in FIG 2. The network may be any public or private system for electronic communication, for example a telephone system, a satellite linked network, or the Internet. FIG 2 illustrates a series of communications that may be accomplished among a seller 20, a buyer 30, and an operator 40. The seller 20 may be any person or organization desiring to provide an item such as a product or service. The buyer 30 may be any person or organization desiring to obtain an item from a seller via a network transaction. The operator 40 functions as a third-party facilitator to the transaction between the seller 20 and the buyer 30.

A first step 1 in this method of commerce has the operator 40 providing an optical disc 10 encoded with data representing a monetary value to buyer 30 in exchange for the transfer 2 of money from the buyer 30 to the operator 40. This transaction may occur via a postal system or preferably as a cash transaction conducted between the buyer 30 and an agent/outlet of the operator 40. Since this is a cash transaction, the identity of the buyer does not have to be revealed.

Prior to the step 1 of providing the optical disc 10 to the buyer 30, the operator 40 will assign an arbitrary monetary value to the optical disc 10. The optical disc 10 is encoded with computer readable data representing this monetary value and/or an identification code for the optical disc 10. The operator 40 may include a data processing machine such as computer 12 wherein information is stored associating the data encoded on the optical disc 10 with the monetary value. The optical disc 10 is preferably marked to include an indication of this initial monetary value, for example $20 as illustrated in FIG1. The optical disc 10 may also include a visible identification number 14. The identification number 14 may be hidden initially under the packaging of the optical disc 10, or hidden by a removable scratch-and-read coating as is known in the art of games of chance. By providing an optical disc 10 with a hidden identification number 14, the initial buyer 30 of the optical disc 10 can be assured that the value of the optical disc 10 is equal to the initial value marked on the face of the optical disc 10. Should the identification number 14 be visible at the time of sale, a buyer 30 is alerted to the possibility that the current value of the optical disc 10 may be less than the initial value marked on its face.

Once the buyer has procured the optical disc 10, the buyer 30 in step 3 of Figure 2 may obtain information regarding an item from a seller 20 by communicating via the network. The seller 20 may transmit in step 4 an on-screen order form to the buyer 30. The order form may identify an item available for purchase and a price associated with that item. Step 4 may also include the transmittal of a software component (not shown) provided by the operator 40 to the seller 20. This software component is used to conduct the commercial exchange process. The buyer 30 is prompted by the software component to insert optical disc 10 into a CD drive connected to the buyer's computer and to enter the identification number 14 from the optical disc 10. A software component on the computer of the buyer 30 is then used to perform a preliminary check to insure that the optical disc 10 is an optical disc supplied by operator 40 and that the identification number 14 entered by buyer 30 is in the correct format. The software component on the computer of the buyer 30 may be provided to the buyer 30 on the optical disc 10.

In step 5 the software component on the buyer's computer transmits a unique encrypted identifier from the optical disc 10 to the operator 40, along with the identification number 14 and a code number obtained from the order form supplied by the seller 20. Operator 40 verifies that the optical disc 10 has sufficient monetary value to cover the price of the item being purchased and in step 6 returns an authorization code or other form of confirmation to the software component on the computer of the buyer 30. The buyer 30 then confirms the price and in step 7 transmits the confirmation to the seller 20.

In order to avoid fraudulent transactions, the seller 20 in step 8 may send the confirmation and additional encrypted

information unique to the compact disc 10 to the operator 40 for final confirmation. The operator 40 then credits an account identified to the seller 20 and debits an account associated with the compact disc 10, and in step 9 sends a confirmation to seller 20. Seller 20 then provides the item to the buyer 30 to complete the transaction. Each of the steps described above may be conducted electronically via a network such as the Internet. Although illustrated with three separate entities in Figure 1, a buyer and a seller alone may implement this invention with the seller 20 assuming the functions of the operator 40. This embodiment may be economically practical for a very high volume seller. Similarly, the seller 20 of Figure 1 may conduct additional transactions wherein seller 20 issues its own media of exchange in the form of an optical disc having data encoded thereon representing a monetary value. The seller 20 would then be able to accept transactions involving the operator's media of exchange or its own media of exchange.

This system may be utilized for transaction having a large or small value. The cost of credit losses and the cost of processing credit applications make credit and debit card transactions uneconomical for small value transactions. For example, the sale of a license to use a single page of copyrighted material may have an economic value of only a portion of a cent. Because the cost of known transaction methods is so high, this type of transaction has not yet been developed in our digital economy. Since the buyer 30 prepays the monetary value of the compact disc 10 there are no credit losses in the system of the current invention. Further, there is no cost for processing credit applications, and the unused balance on the compact disc 10 actually represents a time value of money available to the operator. This value further

reduces the cost of implementing and using the method of the present invention. The system described in FIG 2 may be economical for transactions as small as a fraction of a dollar.

A further advantage of utilizing an optical storage medium as a medium of exchange is that additional data may be encoded onto the optical disc 10. Such data may, for example, represent marketing information. The buyer 30 may view this marketing information when the optical disc 10 is used in the computer of the buyer 30. As an incentive for the buyer 30 to view the marketing information, the optical disc 10 may be encoded with data representing a second monetary value that can be accessed by the buyer 30. In addition to using the optical disc 10 to obtain a first item from the seller 20, as illustrated in FIG 2, a second value or item may be provided to the buyer 30 when the buyer accesses the marketing information. For example, a second monetary value in the form of a discount or rebate may be provided to the buyer 30 whenever the buyer 30 executes certain computer readable code on the optical disc 10. The data stored on optical disc 10 may include a list of advertisers willing to provide a discount or award to a buyer 30 utilizing optical disc 10. The value of such advertising will serve to facilitate the introduction of this form of electronic commerce into the market place.

A buyer 30 or other person who obtains possession of optical disc 10 may utilize the Internet to determine the current value of the optical disc 10. A software component encoded on optical disc 10 may be utilized to communicate with operator 40 over the Internet to display the current monetary value of optical disc 10 on the computer of the buyer 30. This is an important process since the initial monetary value assigned to optical disc

10 may be changed by the operator 40 as a result of previous transactions. Operator 40 may assign a revised monetary value to optical disc 10 following a commercial transaction. The revised monetary value may be a function of the initial monetary value and the price of an item purchased in the earlier transaction. The second monetary value may be simply the first monetary value minus the price. Alternatively, the operator 40 may further reduce the monetary value to reflect a user fee charged against the value of optical disc 10 to cover the cost of the transaction. Conversely the relationship between the initial monetary value and the second monetary value may be an additive function, i.e. the second monetary value may be higher than the first monetary value as a result of the recharging of the optical disc 10 by the buyer 30. The buyer 30 providing credit card account information to operator 40 may conduct such recharging over the Internet. Similarly, the value of optical disc 10 may be increased as a result of the use of marketing information encoded on optical disc 10 by buyer 30.

The operator 40 may provide a web site to provide other services to the buyer 30 and seller 20. In addition to being able to confirm the current value of optical disc 10 as described above, buyer 30 may obtain a history of spending for a particular optical disc 10. Alternatively, this information may be stored locally on the computer of the buyer 30. The buyer 30 would be advised when the optical disc 10 had been utilized in more than one computer with the result that the locally stored information may not be accurate. The web site of the operator 40 may include links to other sellers 20 that accept payment using this form of electronic commerce.

Optical disc 10 may include data representing other types of information, for instance music or software. By combining data representing a monetary value along with data representing another consumer product, the implementation of this form of electronic commerce may be accomplished with a reduced initial cost. Furthermore, the monetary value included on the optical disc 10 with other consumer products may represent a rebate on the price of the consumer product. This is the electronic equivalent of a rebate coupon for a consumer product.

The optical disc 10 may include encrypted information duplicated in many parts of the disc to mitigate the chances of the disc being rendered useless by physical damage. If the information can not be read from the disc in its primary location, the software component controlling the approval process will attempt to read the data from other segments of the disc. To prevent users from guessing passwords, a limited number of retries in a specified time period may be allowed. Other protection schemes may be utilized to prevent the misuse of the system disclosed in FIG.2, however the maximum incentive for a would-be thief is limited to the initial value of optical disc 10. Since the initial value of optical disc 10 may be as low as twenty dollars or less, there is little incentive for would-be thieves to develop fraudulent derivatives of the inventive process. Because of the inherent security of the system, and because the buyer 30 has prepaid for optical disc 10, vendors 20 may be encouraged to accept such a form of payment. Many forms of information are currently being provided across the Internet at no charge since the economic value of such information is very small on a per-transaction basis. The medium of exchanged described herein is inherently efficient and may be utilized for such micro-

transactions, thereby enabling a large market which has heretofore been uneconomical to cultivate.

Like real cash, there would be no compensation for a lost or unspent optical disc 10. Optical disc 10 may be valid for a limited period, for example six months, to simplify the financial record keeping required by the operator 40, and further to ensure that advertising information encoded onto optical disc 10 remains current. Further a buyer 30 may elect to restrict the use of optical disc 10. For example buyer 30 may communicate with operator 40 to implement a password restriction on a particular optical disc 10. Similarly buyer 30 may instruct operator 40 to limit the classes of Internet sites to which payments may be forwarded, for example, preventing an optical disc 10 given to a child from being used to purchase products or services from an adult-oriented Internet site.

The cost of operating the Internet commerce system described in FIG. 2 is preferably born by vendor 20. This may be accomplished by the operator 40 deducting a commission or usage charge from the amount of any payment credited to the account of the vendor 20. Because compact disc 10 is prepaid and has the economic advantages described above, any such commission or use charge is likely to be much smaller for the vendor than current credit card based transactions. Furthermore the time value of money available to the operator 40 from unused and lost optical discs 10 further reduces the amount of expense that must be recovered from the vendor 20.

FIG's 3-9 illustrate the appearance of the screen of the computer of buyer 30 during an Internet transaction in accordance with the method of FIG. 2. FIG. 3 shows buyer 30 visiting a web page where a method of payment in accordance

with the present invention is accepted as indicated by the CD-CASH logo displayed on the screen. As part of its web site, the seller 20 makes available to buyer 30 the screen illustrated in FIG. 4, here indicating a listing of games that may be purchased through the Internet. This screen allows the buyer 30 to select a game, the number of plays, and a method of payment including CD-CASH. Once the order is entered, the software component received from seller 20 asks buyer 30 to confirm the method of payment and the price as indicated in FIG. 5. After this confirmation is received, the buyer 30 is prompted to enter the identification code 14 from the optical disc 10 as illustrated in FIG. 6, and to insert the optical disc 10 into the computer. The identification code 14 and other data from optical disc 10 are transmitted to operator 40. The operator 40 confirms that the current value of optical disc 10 is greater than the price identified for the item to be purchased, and the buyer 30 is requested to confirm the purchase as illustrated in FIG. 7. By approving the payment as shown in FIG. 7, the buyer 30 is forwarding to the seller 20 a confirmation provided by the operator 40 as discussed in relation to step 7 of FIG. 2. Once the transaction is complete as illustrated in FIG. 8, the buyer 30 is authorized to play the purchased game, as illustrated in FIG. 9.

FIG. 10 illustrates how the buyer 30 may confirm the current monetary value of an optical disc 10. FIG. 10 illustrates the web page provided by operator 40 allowing buyer 30 to select several options, including checking the value of the optical disc 10, recharging the optical disc 10, inquiring for more information, and being linked to other web pages provided by sellers 20 who accept this form of payment. FIG. 11 illustrates the screen available to the buyer 30 for checking the value of optical disc 10.

This screen requires the buyer 30 to enter the identification number 14 associated with the optical disc 10 and to insert the optical disc 10 into the disc drive of the computer. FIG. 12 illustrates the response screen provided by the operator 40 showing the current value of the optical disc 10.

FIG. 13 illustrates the way operator 40 may display spending data for a particular optical disc 10 on the computer of buyer 30.

The embodiments of this inventions described herein are provided by means of illustration and not limitation. Accordingly the scope of the applicants' invention is not limited thereby, but rather is as delineated in the appended claims.

CLAIMS

We claim as our invention:

1. A medium of exchange comprising:

an optical disc;

data encoded on the optical disc representing a monetary value.

2. The medium of exchange of claim 1, further comprising data encoded on the optical disc representing marketing information.

3. The medium of exchange of claim 1, further comprising data encoded on the optical disc representing a second monetary value.

4. The medium of exchange of claim 1, further comprising data encoded on the optical disc representing music.

5. The medium of exchange of claim 1, further comprising data encoded on the optical disc representing software.

6. The medium of exchange of claim 1, further comprising:

a first data processing machine;

information stored in the first data processing machine associating the data encoded on the optical disc and the monetary value.

7. The medium of exchange of claim 6, further comprising:

a second data processing machine in communication with the first data processing machine;

a means for displaying the monetary value on the second data processing machine.

8. The medium of exchange of claim 1, further comprising:

an identification number marked on the optical disc; and

a removable layer concealing the identification number.

9. The medium of exchange of claim 1, further comprising:

packaging associated with the optical disc;

an identification number associated with the optical disc included with the packaging.

10. An article of manufacture comprising:

an optical data storage medium;

computer readable data stored on the optical data storage medium and corresponding to a monetary value.

11. The article of manufacture of claim 10, further comprising:

computer readable data on the optical data storage medium corresponding to advertising information.

12. The article of manufacture of claim 10, further comprising data encoded on the optical data storage medium representing music.

13. The article of manufacture of claim 10, further comprising data encoded on the optical data storage medium representing software.

14. The article of manufacture of claim 10, further comprising:

an identification number marked on the optical data storage medium; and

a removable layer concealing the identification number.

15. The article of manufacture of claim 10, further comprising:

packaging associated with the optical data storage medium;

an identification number associated with the optical data storage medium included with the packaging.

16. The article of manufacture of claim 10, wherein the optical data storage medium comprises a compact disc.

17. A method of conducting a transaction, the method comprising:

an operator associating a first monetary value with an optical disc;

a buyer obtaining the optical disc;

the buyer communicating data representing the optical disc and a price to the operator;

the operator providing a confirmation to the buyer;

the buyer transmitting the confirmation to a seller;

the seller confirming the authenticity of the confirmation with the operator.

18. The method of claim 17, wherein the price is associated with an item, and further comprising the step of the seller providing the item to the buyer.

19. The method of claim 17, further comprising the step of the operator associating a second monetary value with the optical disc, the second monetary value being a function of the first monetary value and the price.

20. A method of conducting a transaction via the Internet, the method comprising:

an operator associating a first monetary value with an optical disc;

a buyer obtaining the optical disc;

the buyer obtaining information regarding an item from a seller via the Internet;

the buyer communicating data representing a price and the optical disc to the operator via the Internet;

the operator providing a confirmation to the buyer via the Internet;

the buyer transmitting the confirmation to the seller via the Internet;

the seller confirming the authenticity of the confirmation with the operator via the Internet;

the seller providing the item to the buyer.

21. The method of claim 20, further comprising the step of the operator associating a second monetary value with the optical disc, the second monetary value being a function of the first monetary value and the price.

22. A method of advertising comprising:

storing first data on a computer useable storage medium associated with a first monetary value;

storing second data on the storage medium associated with advertising information;

providing the storage medium to a buyer;

providing a first product or service to the buyer associated with the first monetary value;

providing a second product or service to the buyer associated with the second monetary value in response to the buyer's use of the second data.

CD - CASH
CASH PAYMENTS ON THE INTERNET

CDC INTERNATIONAL

FIG. 1

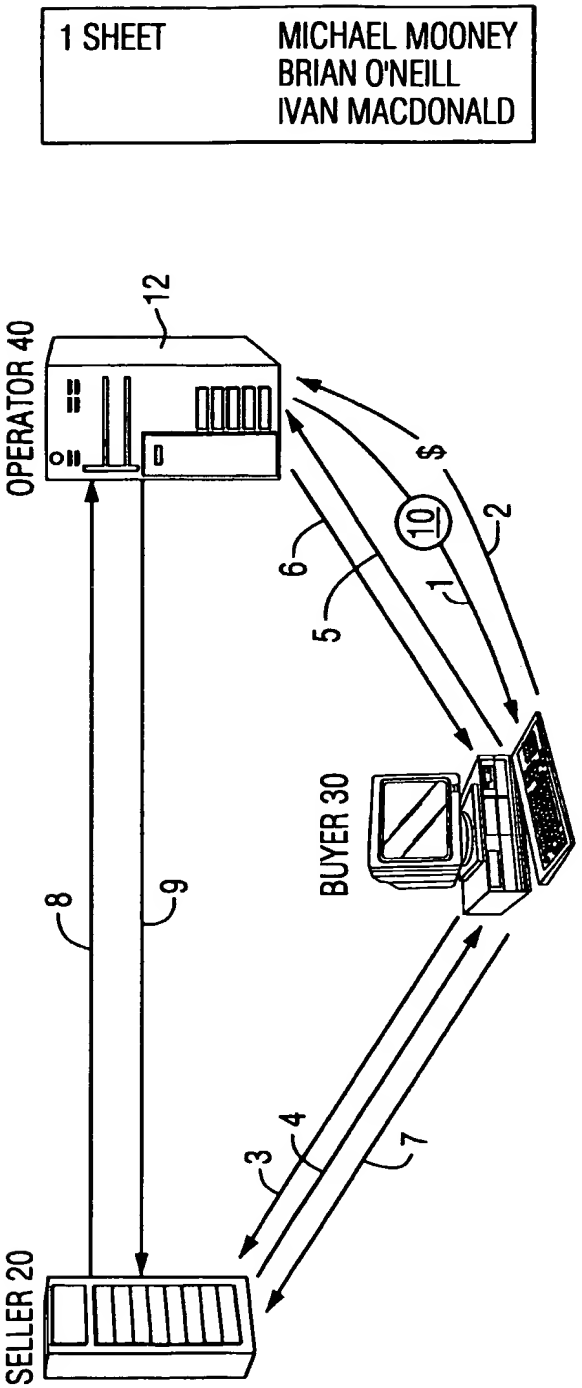


FIG. 2

1. THE USER HAS VISITED A VENDORS WEB SITE AND DECIDES TO MAKE A PURCHASE.
2. THE VENDOR SENDS THE END USER AN ON-SCREEN ORDER FORM WHICH INCLUDES A CD-CASH SOFTWARE COMPONENT FROM THE OPERATOR. THIS COMPONENT IS USED TO INITIATE THE VERIFICATION PROCESS.
3. THE END USER IS PROMPTED TO INSERT A CD-CASH CD INTO THEIR CD DRIVE AND ENTER THE PASSWORD FROM THE CD PACKAGING.

   THE SOFTWARE COMPONENT ON THE END-USER MACHINE DOES A PRELIMINARY CHECK TO ENSURE THE CD IS AT LEAST A CD SUPPLIED BY THE OPERATOR AND THAT THE PASSWORD ENTERED BY THE USER (OBTAINED FROM THE PACKAGING OF THE CD) IS IN THE CORRECT FORMAT.

   IT THEN SENDS THE UNIQUE ENCRYPTED IDENTIFIER FROM THE CD, TOGETHER WITH THE PASSWORD AND ALSO THE VENDORS CODE/ID, TO THE OPERATOR FOR VERIFICATION. (NOTE THAT THE VENDORS CODE IS ACQUIRED BY THE USER WHEN THE VENDOR SENDS THE ORDER FORM.)
4. THE OPERATOR VERIFIES THAT THE CD HAS SUFFICIENT VALUE AND RETURNS AN AUTHORIZATION CODE TO THE SOFTWARE COMPONENT ON THE END USERS COMPUTER.
5. THE SOFTWARE COMPONENT ON THE END USERS COMPUTER THEN NOTIFIES THE VENDOR THAT APPROVAL HAS BEEN RECEIVED AND SENDS THE VENDOR THE AUTHORIZATION CODE.
6. THE VENDOR'S COMPUTER SENDS THE AUTHORIZATION CODE AND ADDITIONAL ENCRYPTED INFORMATION UNIQUE TO THE CD TO THE OPERATOR FOR FINAL CONFIRMATION. THE VALUE OF THE CD IS NOW DEBITED AND THE VENDOR ACCOUNT CREDITED.
7. A CONFIRMATION IS SENT BACK TO THE VENDOR THAT PAYMENT HAS BEEN MADE. THE VENDOR NOW KNOWS THAT IT IS OK TO GIVE THE SERVICE OR GOODS TO THE END USER. THE VENDOR'S ACCOUNT WITH THE OPERATOR HAS NOW BEEN CREDITED WITH THE AMOUNT RELEVANT TO THE TRANSACTION.

8. APPENDIX

8.1 STORYBOARD

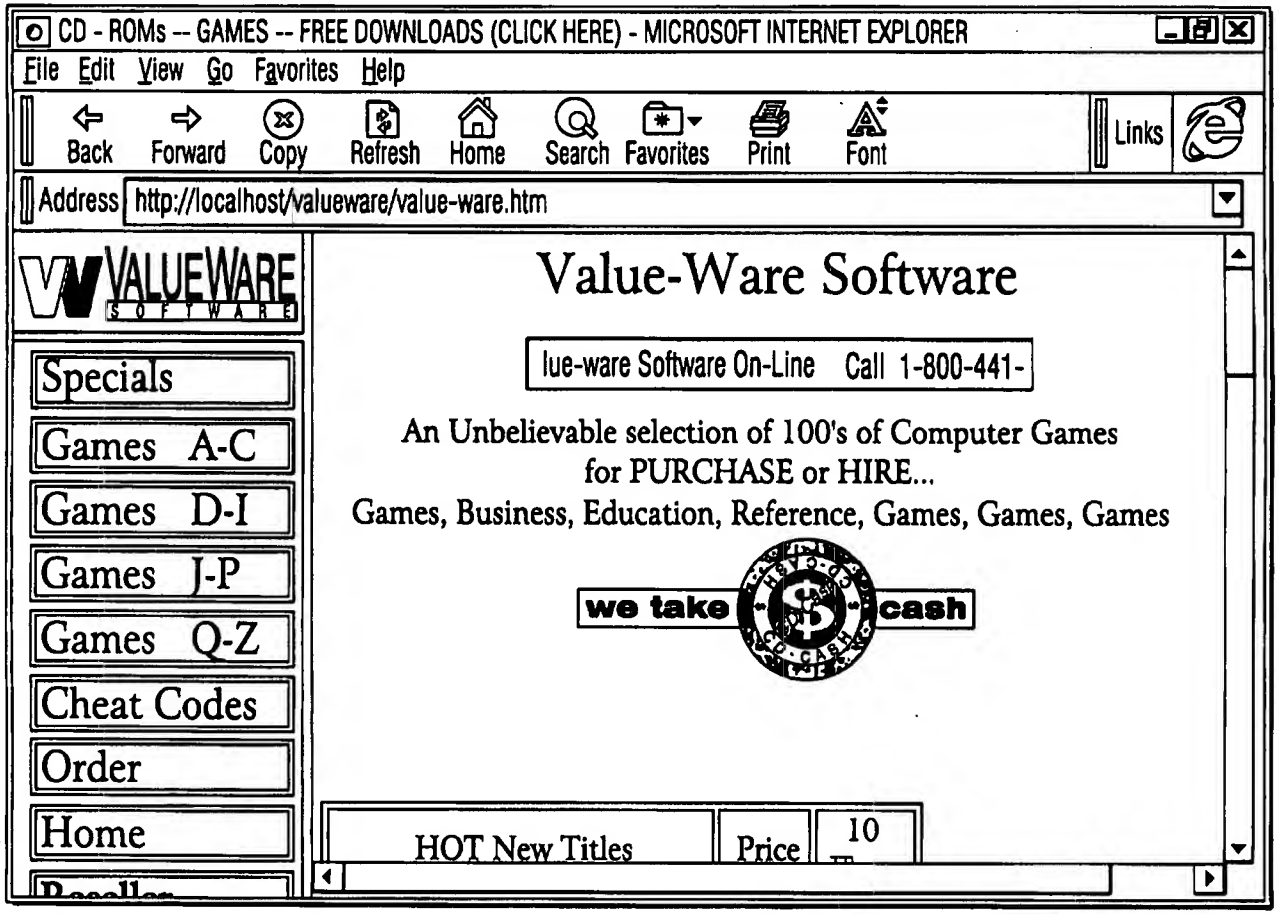


FIG. 3

ON THE INTERNET, A CUSTOMER VISITS A WEB SITE THAT ACCEPTS CD-CASH AS PAYMENT. IN THIS EXAMPLE, IT IS A COMPUTER-GAMES SITE.

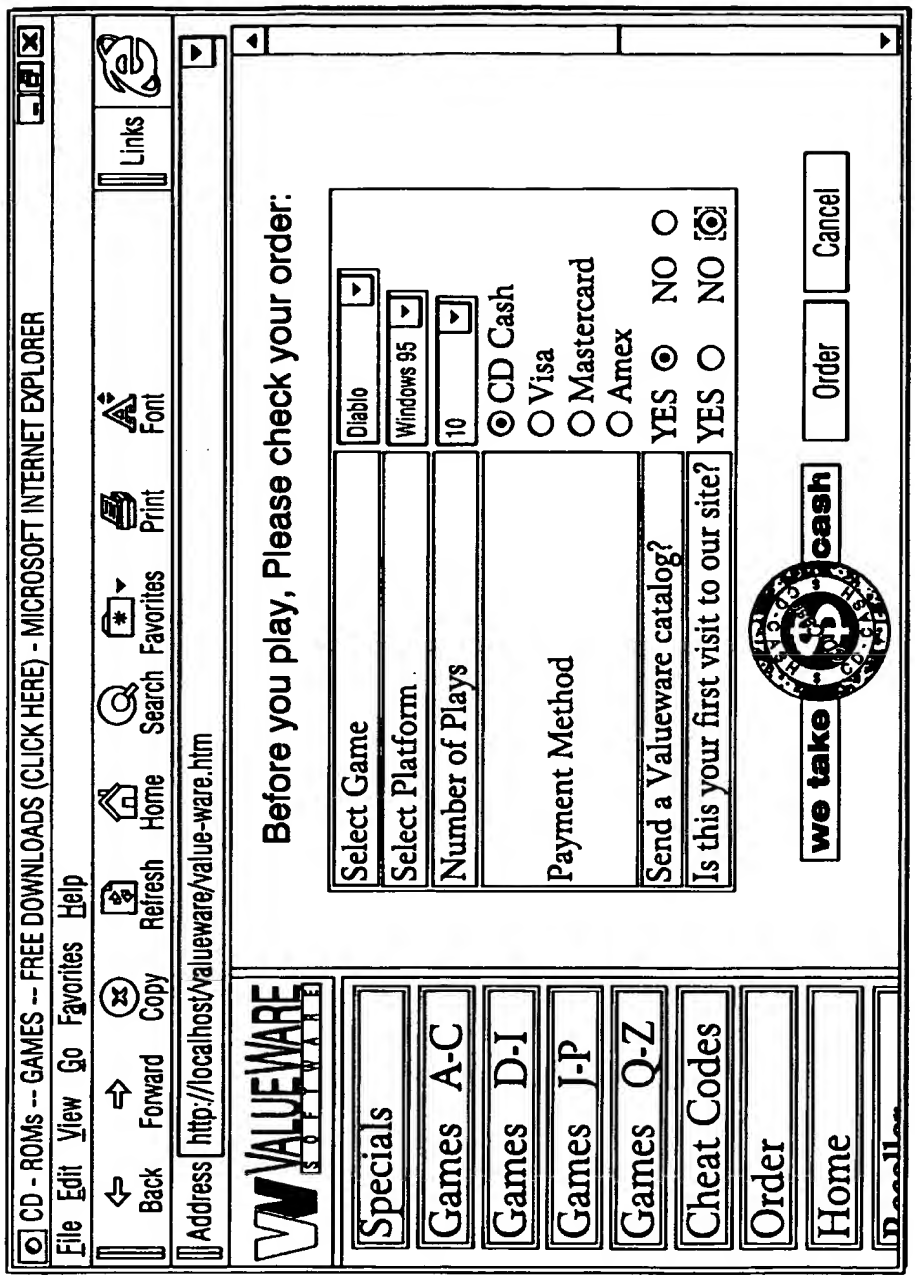
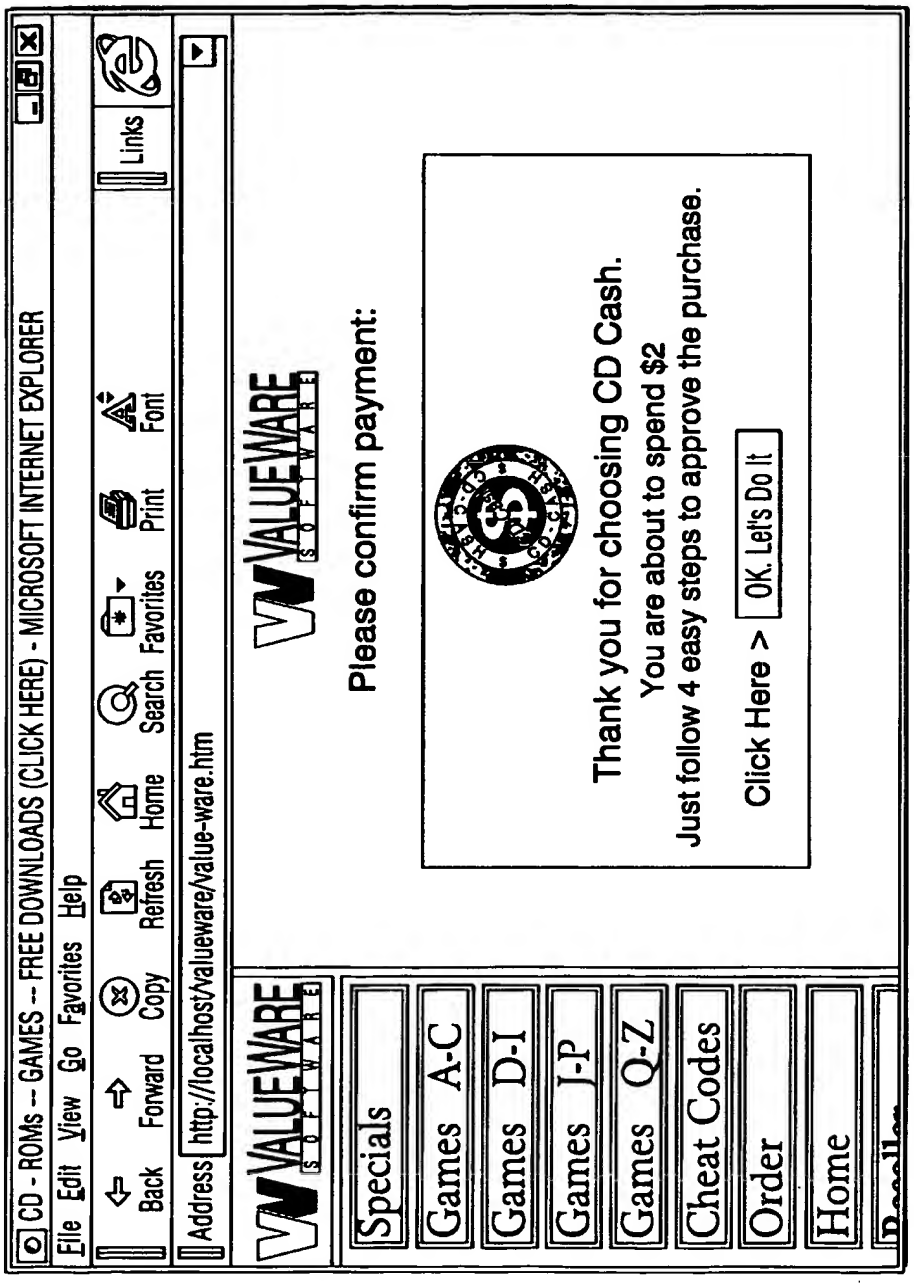


FIG. 4

CUSTOMER DECIDES TO PLACE AN ORDER AND SELECTS CD-CASH AS PAYMENT METHOD.



THE PAYMENT PROCESS BEGINS

FIG. 5

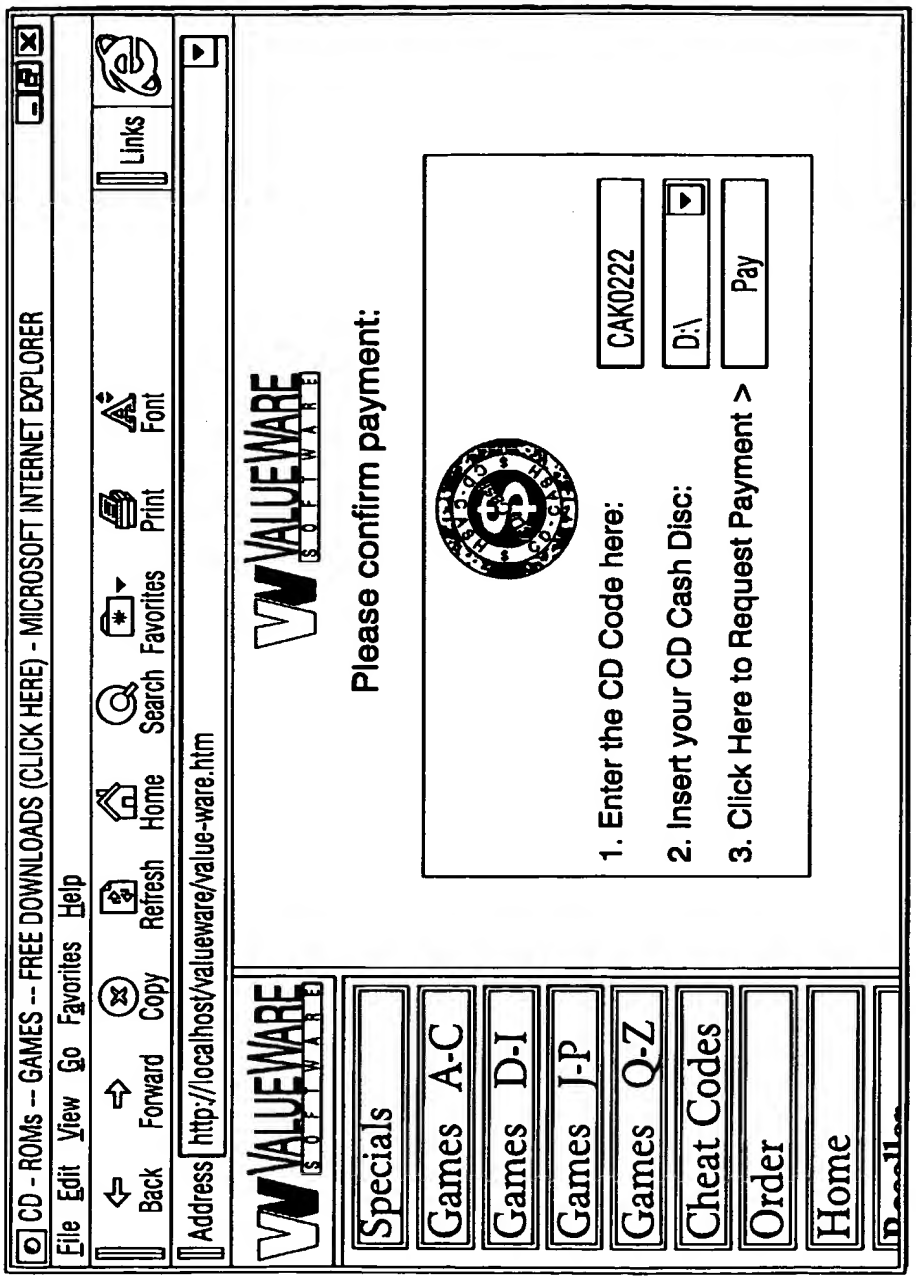


FIG. 6

CUSTOMER ENTER SECURITY CODE FROM THE PACKAGING OF THEIR CD-CASH DISC (SEE MOCK-UP DISC).

THEY INSERT THE CD INTO THE ORDINARY CD-ROM DRIVE OF THEIR PC.

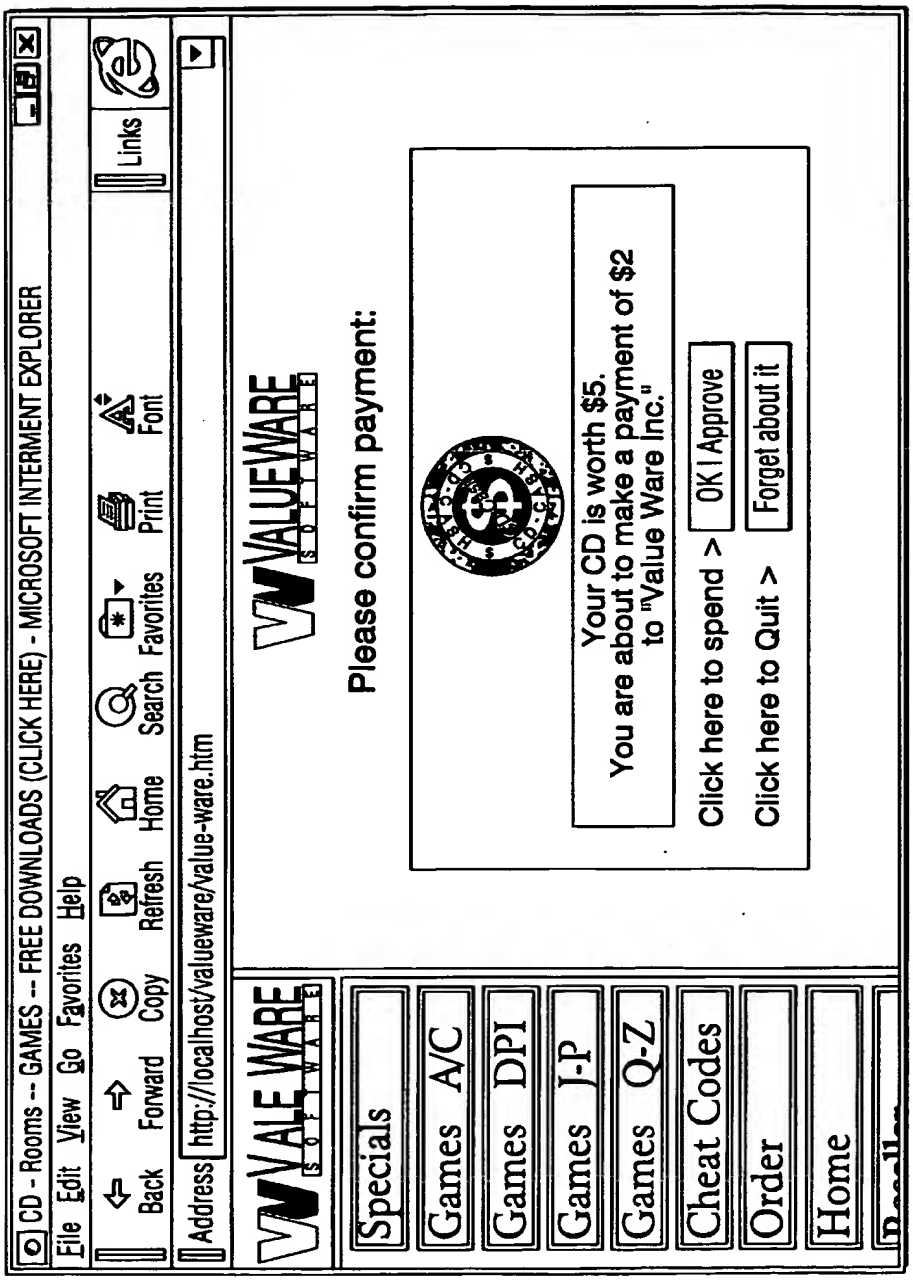


FIG. 7

THE CURRENT VALUE OF THE CD IS DISPLAYED TO THE CUSTOMER AND THEY ARE ASKED TO GIVE FINAL CONFIRMATION FOR THE PAYMENT THEY WISH TO MAKE.

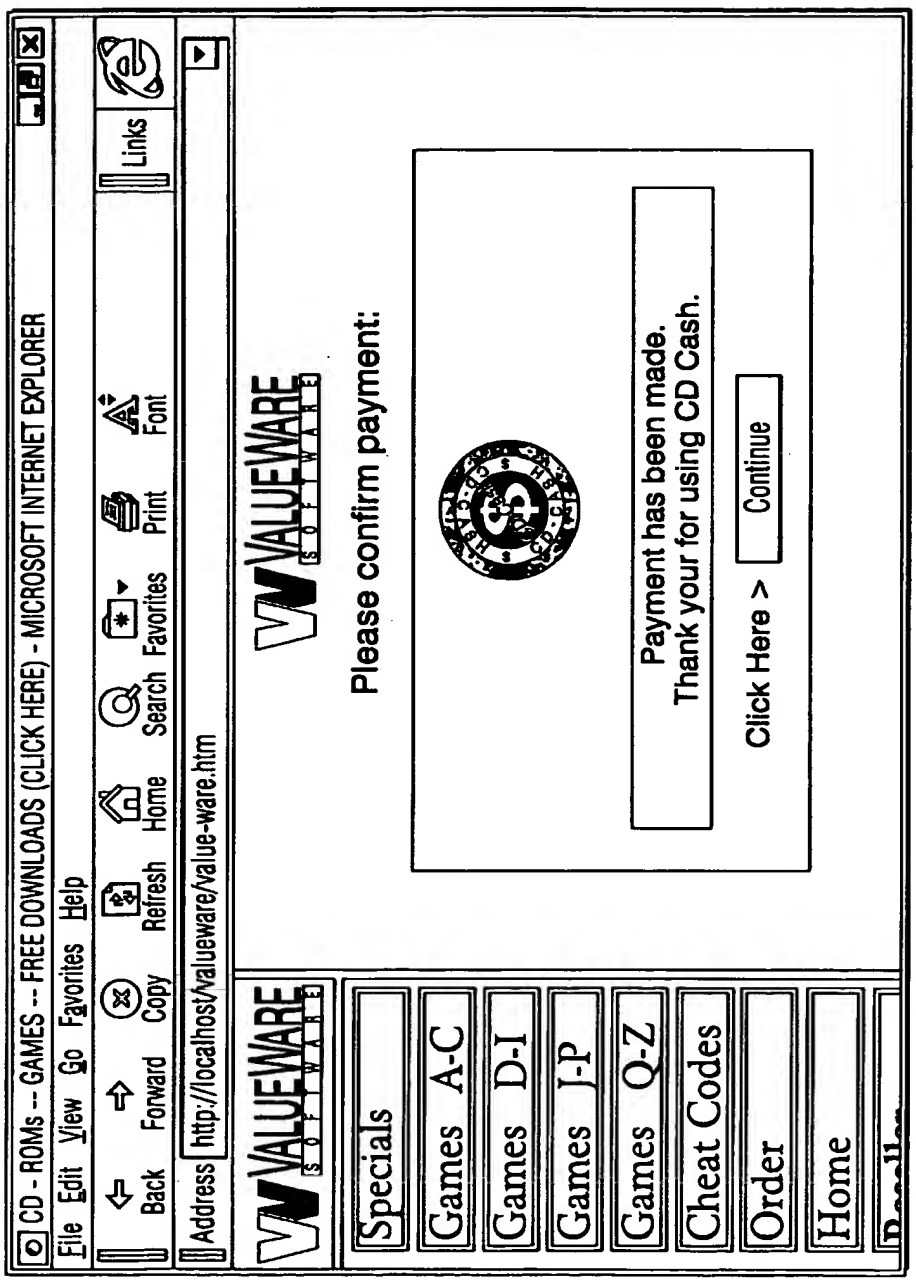
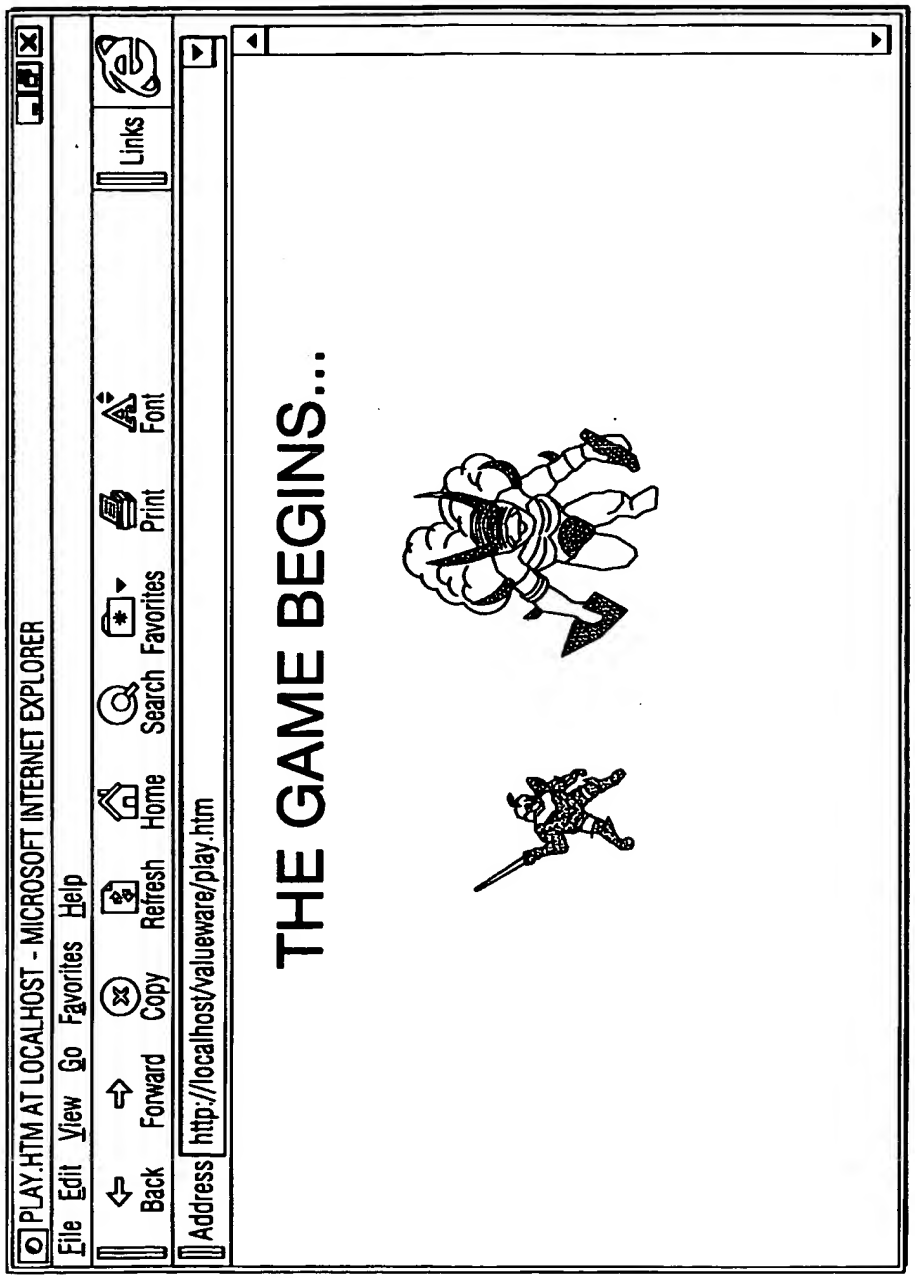


FIG. 8

THE TRANSACTION IS COMPLETED - THE VALUE OF THE CD IS DECREASED AND THE WEB-SITE OWNERS ACCOUNT IS CREDITED.



THE CUSTOMERS ORDER IS 'DELIVERED'...

IN THE EXAMPLE TRANSACTION, THE CUSTOMER PAID A VENDOR $2 FOR 10 PLAYS OF A POPULAR COMPUTER GAME.

FIG. 9

CD-CASH HOME PAGE

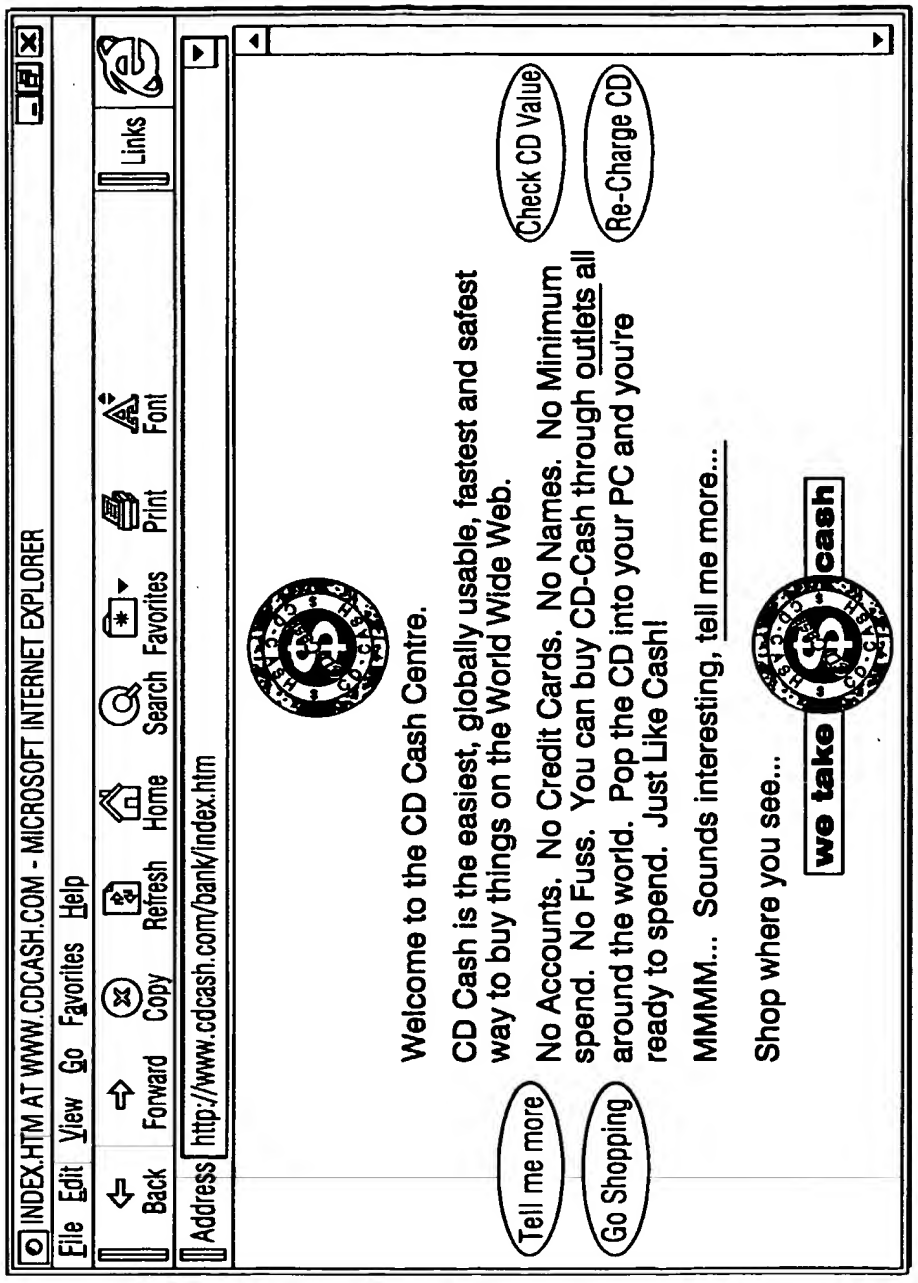


FIG. 10

THE FOLLOWING TWO SCREENS SHOW HOW A USER MIGHT CHECK THE VALUE OF A CD-CASH DISC.

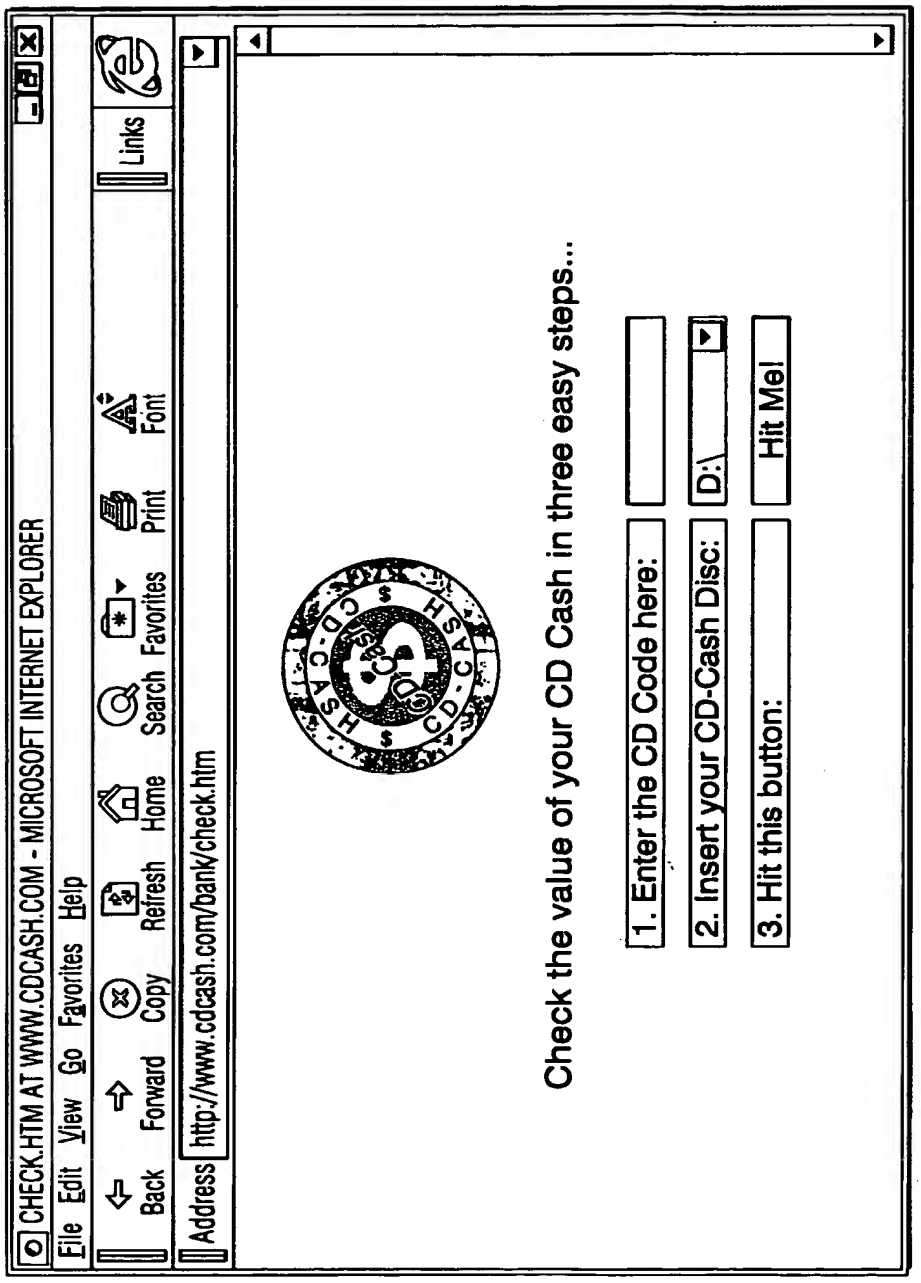


FIG. 11

CUSTOMER IS PROMPTED TO ENTER THE SECURITY CODE AND INSERT THE CD-CASH DISC INTO THEIR PC'S CD-ROM DRIVE.

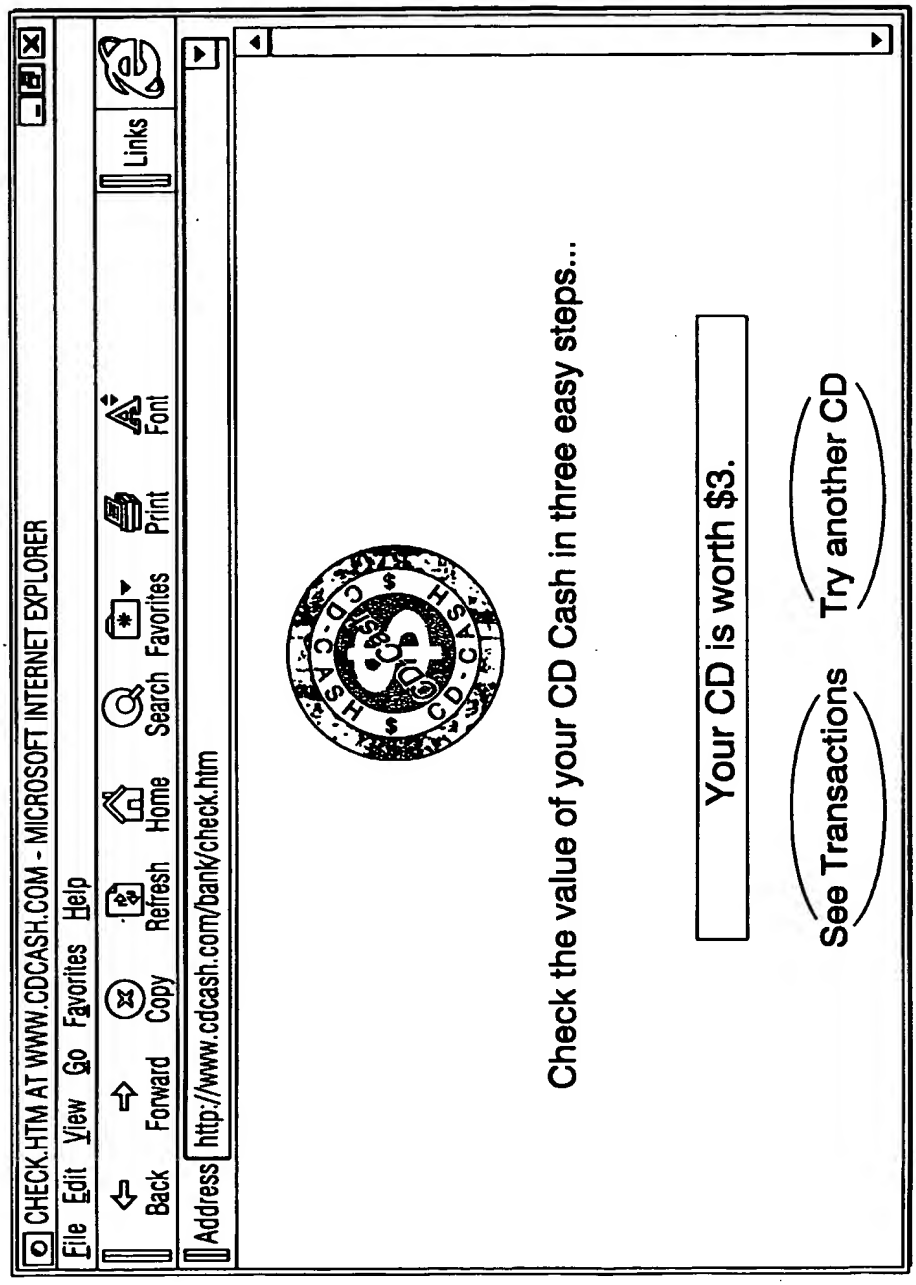


FIG. 12

THE CURRENT VALUE OF THE CD-CASH DISC IS DISPLAYED.

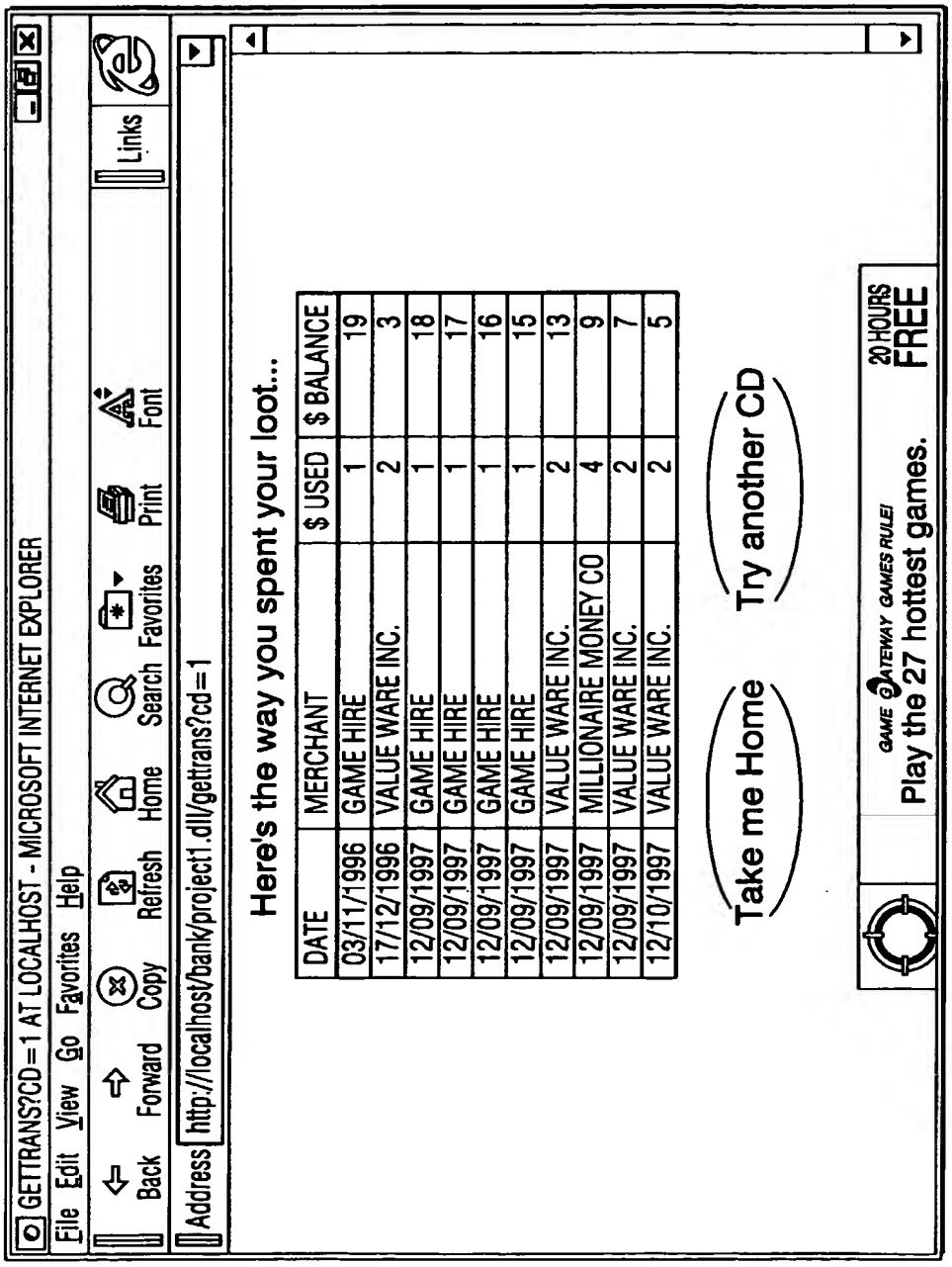


FIG. 13

OPTIONALLY, THE USER CAN SEE HOW AND WHEN THEIR CD-CASH HAS BEEN SPENT.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US99/28674

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :G06F 17/60, 17/00
US CL :705/39, 26

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 705/39, 26

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Internet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,704,046 A (HOGAN) 30 December 1997, col 3, lines 21-43; col 5, lines 51-65; col 6, lines 33-64; and col 7, lines 60-64.	1-22
Y	US 5,748,737 A (DAGGAR) 05 May 1998, col 10, lines 28-29.	1-22
Y	US 5,832,089 A (KRAVITZ et al) 03 November 1998, col 9, line 40 - col 10, line 5.	17-22
Y,P	US 5,903,880 A (BIFFAR) 11 May 1999, col 16, lines 49-67.	2, 11, and 22
Y,P	US 5,926,548 A (OKAMOTO) 20 July 1999, col 9, line 45 - col 11, line 21.	1-22

[X] Further documents are listed in the continuation of Box C. [ ] See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
01 MARCH 2000	21 MAR 2000
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer JAMES W. MYHRE Telephone No. (703) 308-7843

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US99/28674

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y,P	US 5,991,747 A (TOMOYUKI et al) 23 November 1999, col 3, line 25 - col 4, line 59 and col 5, lines 23-30.	1-22
Y,E	US 6,016,476 A (MAES et al) 18 January 2000, col 3, lines 17-37.	1-22
A	SOLINSKY, JASON, An Introduction to Electronic Commerce, Worldquest University Topic, http://www.worldquest.com/wqu/elecomm.html, 24 November 1995, pages 1-7	1-22
A	PEIRCE, M.E., Electronic Cash, Tokens and Payments in the National Information Infrastructure, http://ganges.cs.tcd.ie/mepeirce/Project/Pro/ToC.html, downloaded 29 May 1998, 16 pages.	1-22
A	SCHOTER, Andreas and WILLMER, Rachel, Digital Money Online, A Review of Some Existing Technologies, Intertrader Ltd., February 1997, 54 pages.	1-22